Missouri Spring Rise –
Spring-Rise Alternative

Hydrology/Water Quality Technical Group

Missouri River Plenary Meeting

July 26, 2005

Spring-Rise Alternative

a. Number of Rises

One/Two depending on storage conditions

- No Spring Rise below 31.0 MAF storage on March 15
- A single rise between 31.0 and 34.0 MAF
- Two rises between 34.0 and 58.5 MAF

Spring-Rise Alternative

b. Flood Control Targets/Constraints

Modify the flood control constraints minimally during the spring rise period.

Spring-Rise Alternative

c. First Rise

i. Timing

Coincide first rise with the start of navigation support releases from Gavins Point

Spring-Rise Alternative

c. First Rise

ii. Duration and rise and fall rates

- Rise at a rate of 6,000 cfs/day
- 2 day peak
- Fall 4,000 first day, then prorate the fall rate so that the total length of the rise is 16 days

Spring-Rise Alternative

c. First Rise

iii. Magnitude

- Prorate between 22,000 cfs and 6,000 cfs
- Use an absolute flow cap of 35,000 cfs releases from Gavins Point

Spring-Rise Alternative

d. Flows between rises

Use Master Manual curves

- **Use Flow to Target except during evacuation periods**

Spring-Rise Alternative

e. Second Rise

- No rise when system storage is below 31.0 MAF
- Prorate the rise between 31.0 MAF and 54.5 MAF
- Above 58.5 MAF have no rise

Spring-Rise Alternative

e. Second Rise

i. Timing

- As late as possible – must consider the bird species and avoid unacceptable levels of take

Spring-Rise Alternative

e. Second Rise

ii. Duration and rise and fall rates

- Rise up to 6,000 cfs/day
- 2 day peak
- Drop 4,000 cfs/day for two days, prorate the fall rate so that the total length of the rise is 21 to 28 days

Spring-Rise Alternative

e. Second Rise

iii. Magnitude

- Prorate between 20,000 cfs and 10,000 cfs
- Use an absolute flow cap of 48,000 cfs releases from Gavins Point

Spring-Rise Alternative

f. How to address water availability and variation for wet, normal, and dry years

- Use March 15th storage check to set number of peaks and their magnitudes.
- Based on navigation support and drought conservation in the Current Water Control Master Manual.

Spring-Rise Alternative

g. Volume of Water Used

Uses an additional 0.34 MAF compared to Current Water Control Plan

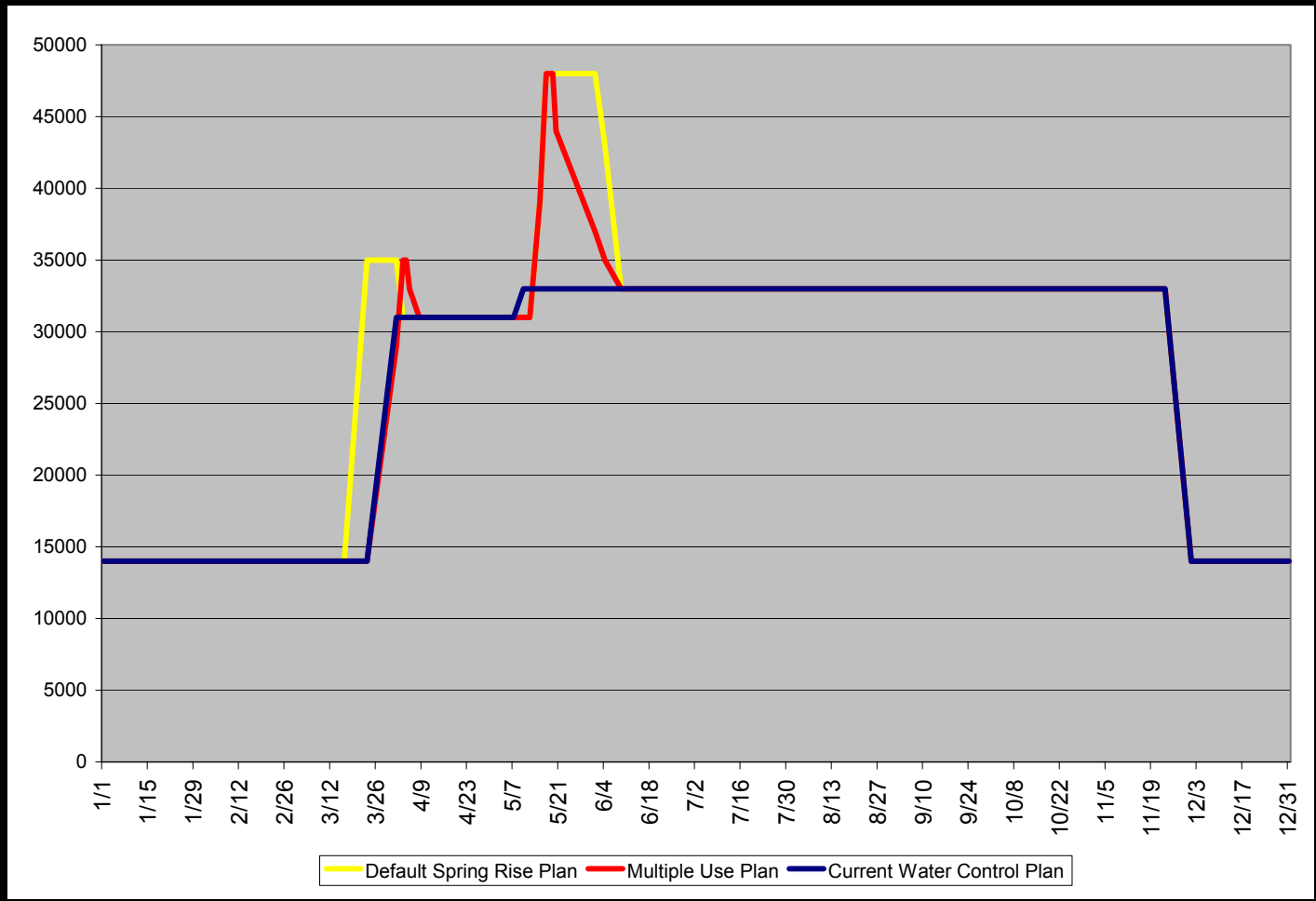
Spring-Rise Alternative

h. Proposal Flexibility

- The Corps should use all forecasting abilities to reduce flooding
- The Corps should be able to react to unexpected events during the spring rise period
- As more tern and plover habitat is created, the spring rise may be shifted later in June
- Proposed flow rates could be targeted immediately below the James River confluence.

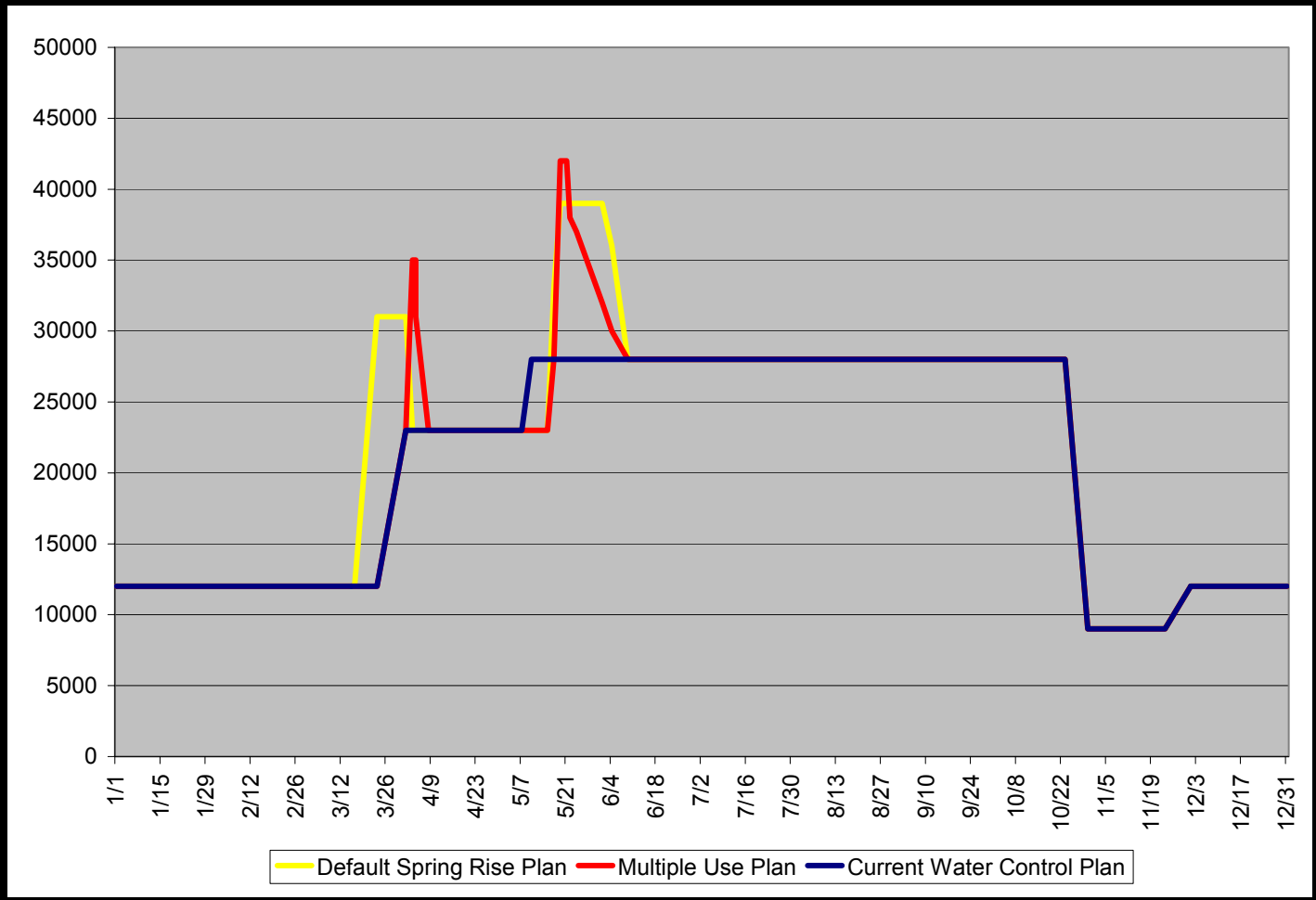
Release Hydrograph

Normal System Storage - Bimodal Rise



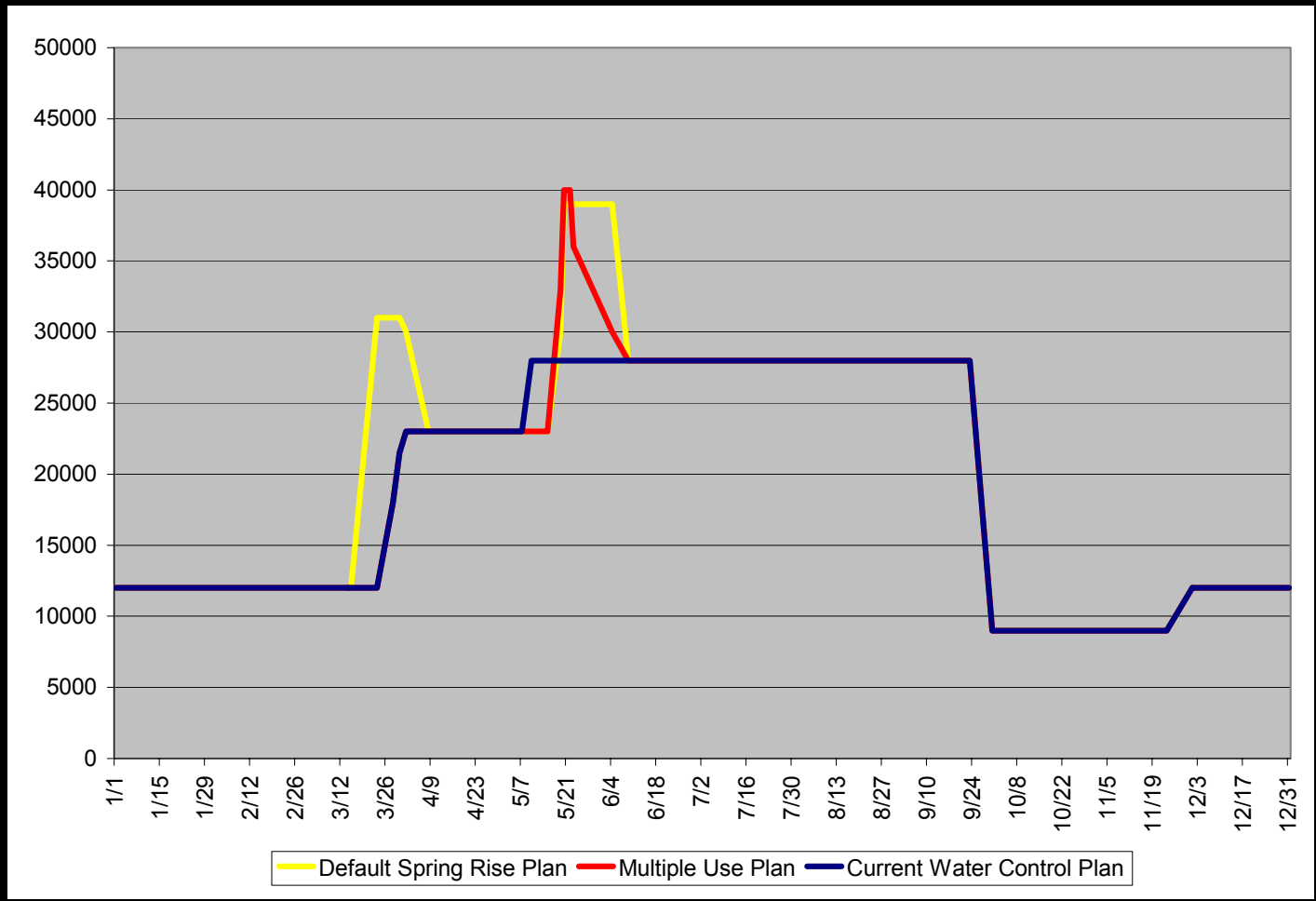
Release Hydrograph

Low System Storage - Bimodal Rise



Release Hydrograph

Low System Storage - Single Rise



Spring-Rise Alternative

Questions?